

**Internet Interactive, Real-time Video Image Acquisition System Based in Low Earth Orbit**

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## **9.0 CLAIM OR CLAIMS**

What is claimed is:

1. An imaging system configured to be deployed on a satellite in Low Earth Orbit, comprising:
  - one or more imaging sensors that are individually configured to be controlled by a pointing mechanism, via electrical signals, through two or three axes of motion namely rotation or translation or depth of field and,
  - said imaging sensors that produce images sequentially and in temporal frequency at a rate faster than three images per second and,
  - a controller sub-system that receives commands from the onboard computer and communication system and generates control signals that control actuators that control said image sensors and,
  - an onboard image processing system wherein the said image data is prepared using, but not limited to, digital imagery compression techniques for transfer to the onboard communication system and,
  - an onboard communication system that can transmit the image stream to a remote transceiving station that may be located on the ground, in the atmosphere, or in space and,
  - a remote transceiving station system that is connected directly to the internet and can distribute said downlinked image data throughout the internet infrastructure as well as uplink the said image sensor's control commands.
2. The real-time video imaging system in claim 1 wherein the image sensors are configured on a common platform that is subordinate to the spacecraft structure.
3. The real-time video imaging system in claim 2 wherein said common platform is configured to allow for multiple viewing angles and field of views.
4. The real-time video imaging system in claim 2 wherein said common platform is separately controlled, activated and deployed.
5. The real-time video imaging system in claim 1 wherein said image sensors are mounted directly on spacecraft primary or secondary structure.

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6. The real-time video imaging system in claim 1 further comprising one or more redundant drive actuators for each axis of movement.
7. The real-time video imaging system in claim 1 further comprising a mechanism or apparatus for altering said image sensor's depth of focus.
8. The real-time video imaging system in claim 1 wherein the said sequential images creates a video image stream.
9. The real-time video image stream in claim 8 wherein said image stream data is processed and compressed by some factor to reduce image data quantity.
10. The real-time video image stream in claim 8 wherein said image stream is sent to the onboard communication system.
11. The real-time video image stream in claim 8 wherein said image stream is downlinked to a remote transceiving station.
12. The real-time video image stream in claim 8 wherein the image stream is sent to an onboard data storage device.
13. The real-time video image stream in claim 8 wherein the image stream is distributed through the internet infrastructure.
14. The real-time video imaging system in claim 1 further comprising a thermal control apparatus for said image sensor subsystem.
15. The real-time video imaging system in claim 1 further comprising an impact protection apparatus for said image sensor subsystem.
16. The remote transceiving station of claim 1 further comprising
  - a receiving antenna and,
  - a receiver and,
  - a data handling system and,
  - a local data storage device and,
  - an internet link and,
  - a power system and,

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- a transmitter and,**
  - a transmitting antenna and,**
  - an antenna pointing system.**
- 17. The image sensor of claim 1 further comprising a photon input modifying apparatus.**
- 18. The image sensor photon modifying apparatus of claim 17 wherein said apparatus includes an aperture modulator.**